

AMENDMENT TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application.

1. (currently amended) A method for spectral envelope encoding ~~oding in a source coding system, where said system comprises an encoder representing all operations performed prior to storage or transmission, and a decoder representing all operations performed after storage or transmission, and where~~ for an input signal, the input signal having a bandwidth, the bandwidth including certain frequency regions, the input signal being represented by a source encoded version thereof, the source encoded version having a bandwidth not including the certain frequency regions, a spectral envelope of the input signal in the certain frequency regions being representable by a coarse spectral envelope representation and a fine spectral envelope representation, the fine spectral envelope representation being a residual signal, comprising the following steps: ~~corresponding to certain frequency regions is excluded from transmitted or stored data and a new residual is synthesised in said decoder, characterised by:~~

~~at said encoder, perform~~ performing a statistical analysis of the input ~~signal,~~ signal;

based on ~~the~~ an outcome of ~~said~~ the statistical analysis, ~~select the grid to be used in the spectral envelope representation,~~ generating data on the coarse spectral envelope representation for the certain frequency regions by sampling the spectral envelope in the certain frequency regions with a varying time resolution or a varying frequency resolution, wherein a time resolution or a frequency resolution selected for a time instant depends on the outcome of the statistical analysis of the input signal at the time instant;

~~using said grid, generate data representing said spectral envelope,~~

~~transmit said data together with~~ generating a control signal describing ~~said grid,~~ the varying time resolution or the varying frequency resolution; and

generating an encoded input signal by multiplexing the source encoded version, the data on the coarse spectral envelope representation and the control signal, wherein the encoded input signal does not include the residual signal ~~at said decoder, using~~

~~said control signal and said data in the synthesis of the output signal.~~

2. (currently amended) A method according to claim 1, ~~characterised in that said instantaneous time and frequency resolution is obtained by grouping of elements in a~~ in which the steps of generating the coarse envelope information includes the following steps:

obtaining elements of a time/frequency representation of
~~said the input signal, signal;~~

grouping of elements in the time/frequency representation
of the input signal, and

calculating a scalefactor for every ~~one of said~~
~~groups~~group.

3. (currently amended) A method according to claim 2, ~~characterised in that said time/frequency representation is generated by~~ in which the step of obtaining includes the step of using a filterbank.

4. (currently amended) A method according to claim 3,
~~characterised in that said~~ in which the filterbank is of fixed
size.

5. (currently amended) A method according to claim 1,
~~characterised in that said~~ in which the step of generating the data
on the coarse spectral envelope representation for the certain
frequency regions includes the step of using ~~is generated by a~~
linear predictor.

6. (currently amended) A method according to claim 1,
~~characterised in that said~~ in which the step of performing a
statistical analysis employs ~~includes the step of employing a~~
transient detector.

7. (currently amended) A method according to ~~claim 6~~ claim
1, characterised in that said in which the step of generating the
data on the coarse spectral envelope representation includes the
step of switching an instantaneous resolution ~~is switched from a~~
default combination of higher frequency resolution and lower time
resolution to a combination of lower frequency resolution and

higher time resolution at the onset of a transient to obtain the
varying time resolution of the varying frequency resolution.

8. (currently amended) A method according to claim 1,
~~characterised in that said~~ wherein the step of generating the
control signal is operative to generate the control signal such
that the control signal describes positions within a granule of
constant update rate,

wherein generated by said the step of performing the
statistical analysis is operative to apply the constant update
rate, and

wherein the step of generating data on the coarse
spectral envelope representation is operative to chose an said
instantaneous resolution ~~is chosen based on the positions of~~
transients in the input signals within current and neighbouring
neighboring granules, by the use of rules available to both said an
encoder and ~~said a~~ decoder.

9. (currently amended) A method according to claim 8,
~~characterised in that~~ wherein the step of generating the control

signal is operative to generate the control signal such that the at
most one position per granule is ~~signalled~~signaled.

10. (currently amended) A method according to claim 1,
~~characterised in that~~ wherein the step of generating data on the
coarse spectral envelope representation is operative to use
granules of variable length ~~are used~~.

11. (currently amended) A method according to claim 10,
~~characterised in that~~ wherein four classes of granules are used,
whereby

the first class has fixed position granule boundaries,
and the length L,

the second class has a fixed position start boundary, and
a variable position stop boundary,

the third class has a variable position start boundary,
and a fixed position stop boundary,

the fourth class has variable position start and stop
boundaries, and

said fixed positions coincide with reference positions, separated by the distance L , and said variable positions can be offset $[-a,b]$ versus said reference positions.

12. (currently amended) A method according to claim 2, ~~characterised in that said~~ in which the step of generating data on the coarse spectral envelope representation further comprises the step of coding the scalefactors are coded both in the time and frequency direction, the wherein a momentarily most beneficial direction is determined, and wherein the said most beneficial direction is used for said transmission chosen in the step of coding.

13. (currently amended) A method according to claim 12, ~~characterised in that the~~ in which the step of generating data on the coarse spectral envelope representation further comprises the step of coding the scalefactors both in the time and frequency direction, wherein a direction which generates the least a least coding error for a given number of bits is chosen for the step of coding.

14. (currently amended) A method according to claim 12, ~~characterised in that the~~ in which the step of generating data on the coarse spectral envelope representation further comprises the step of coding the scalefactors both in the time and frequency direction, wherein a direction which generates the least number of bits for a given coding error is chosen for the step of coding.

15. (currently amended) A method according to claim 14, ~~characterised in that~~ in which the step or coding includes the step of employing lossless coding, wherein ~~is employed and separate tables are used for said the time direction and the frequency directions, in particular where said direction, wherein a result of coding using the tables are used for selection of coding direction~~ is used for choosing of the direction for coding.

16. (currently amended) An apparatus for ~~encoding of a spectral envelope of a~~ encoding for an input signal to be decoded by a decoder, characterised by the input signal having a bandwidth, the bandwidth including certain frequency regions, the input signal being represented by a source encoded version thereof, the source encoded version having a bandwidth not including the certain

frequency regions, a spectral envelope of the input signal in the certain frequency regions being representable by a coarse spectral envelope representation and a fine spectral envelope representation, the fine spectral envelope representation being a residual signal, comprising:

means for performing a statistical analysis of the input signal,

~~means for selection of the instantaneous time and frequency resolution to be used in a spectral envelope representation of said input signal, based on the outcome of said analysis,~~
generating data, based on the outcome of the statistical analysis, on the coarse spectral envelope representation for the certain frequency regions by sampling the spectral envelope in the certain frequency regions with a varying time resolution or a varying frequency resolution, wherein a time resolution or a frequency resolution selected for a time instant depends on the outcome of the statistical analysis of the input signal at the time instant,

~~means for generation of data representing said spectral envelope, using said resolution, and~~

~~means for transmission of said data together with a control signal describing said resolution~~

generating a control signal describing the varying time resolution or the varying frequency resolution; and

generating an encoded input signal by multiplexing the source encoded version, the data on the coarse spectral envelope representation and the control signal, wherein the encoded input signal does not include the residual signal.

17. (currently amended) An apparatus for spectral envelope decoding of a spectral envelope of a signal ~~an~~ encoded by an encoder, characterised by signal, the encoded signal including a source encoded version of an original signal, the original signal having a bandwidth including certain frequency regions, the source encoded version having a bandwidth not including the certain frequency regions, data on a coarse spectral envelope representation representing the spectral envelope with a varying time resolution or a varying frequency resolution, and a control signal indicating the varying time resolution or the varying frequency resolution, the source encoded signal resulting, after source decoding, in a decoded version of the original signal, the

decoded version of the original signal having a bandwidth not including the certain frequency regions:

a demultiplexer for demultiplexing the encoded signal to obtain the source encoded version, the data on the coarse spectral envelope representation and the control signal;

means for generating a spectral band replicated signal for the certain frequency regions;

means for ~~interpretation of a received~~ interpreting the control signal in order to determine the ~~instantaneous~~ varying time resolution or the varying ~~and~~ frequency resolution used in a spectral envelope representation of an encoded signal,

~~means for decoding of received envelope data based on said spectral envelope representation, using said control signal,~~
and

~~means for using said decoded envelope data in the synthesis of the output signal~~

means for envelope adjusting the spectral band replicated signal using the data on the coarse spectral envelope information and the varying time resolution or the varying frequency resolution; and

means for adding the envelope adjusted signal and the decoded version of the original signal to obtain a decoded signal having a bandwidth including the certain frequency regions.

18. (new) Method according to claim 1, in which the step of generating the data on the coarse envelope representation for the certain frequency regions includes the step of selecting a time/frequency resolution grid to be used for the coarse spectral envelope representation, and in which the control signal is generated to describe the grid.

19. (new) A method of spectral envelope decoding an encoded signal, the encoded signal including a source encoded version of an original signal, the original signal having a bandwidth including certain frequency regions, the source encoded version having a bandwidth not including the certain frequency regions, data on a coarse spectral envelope representation for the certain frequency regions, the data on the coarse spectral envelope representation representing the spectral envelope with a varying time resolution or a varying frequency resolution, and a control signal indicating the varying time resolution or the varying frequency resolution,

the source encoded signal resulting, after source decoding, in a decoded version of the original signal, the decoded version of the original signal having a bandwidth not including the certain frequency regions, comprising the following steps:

demultiplexing the encoded signal to obtain the source encoded version, the data on the coarse spectral envelope representation and the control signal;

generating a spectral band replicated signal for the certain frequency regions;

interpreting the control signal in order to determine the varying time resolution or the varying frequency resolution,

envelope adjusting the spectral band replicated signal using the data on the coarse spectral envelope information and the varying time resolution and the varying frequency resolution; and

adding the envelope adjusted signal and the decoded version of the original signal to obtain a decoded signal having a bandwidth including the certain frequency regions.